

G. H. DAVIS.
 COIN CONTROLLED MECHANISM.
 APPLICATION FILED NOV. 22, 1910.

974,035.

Patented Oct. 25, 1910.

2 SHEETS—SHEET 1.

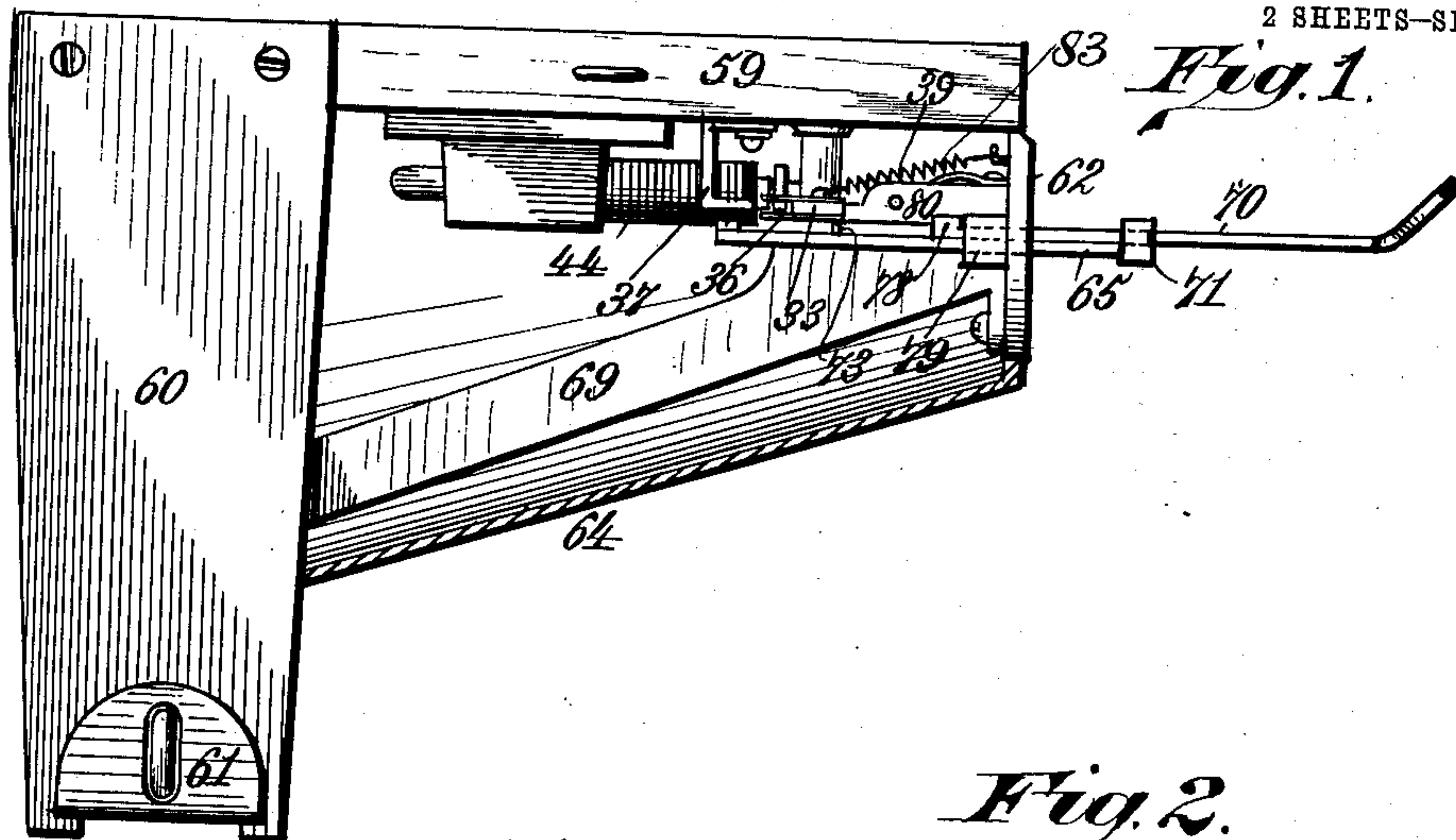


Fig. 2.

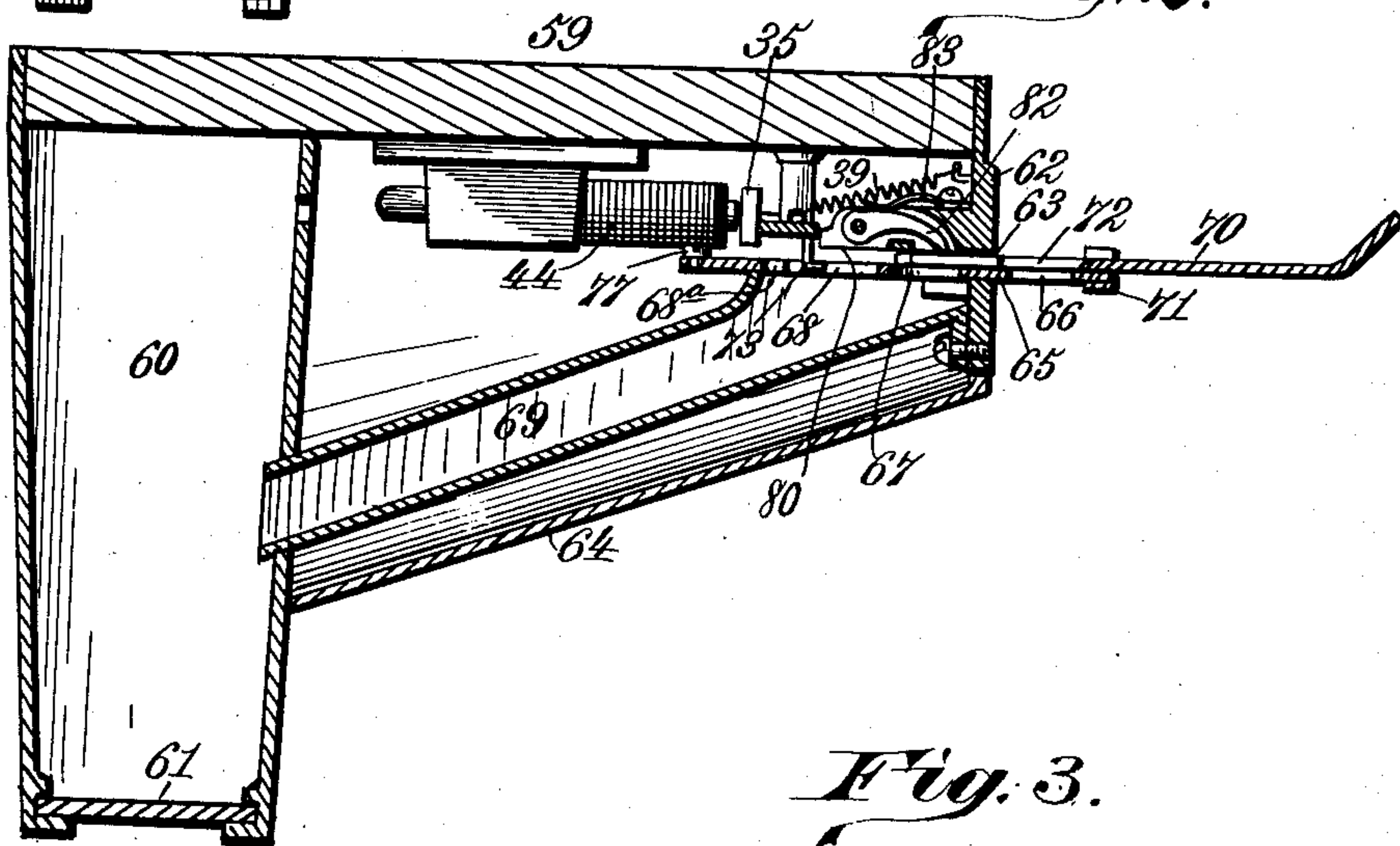
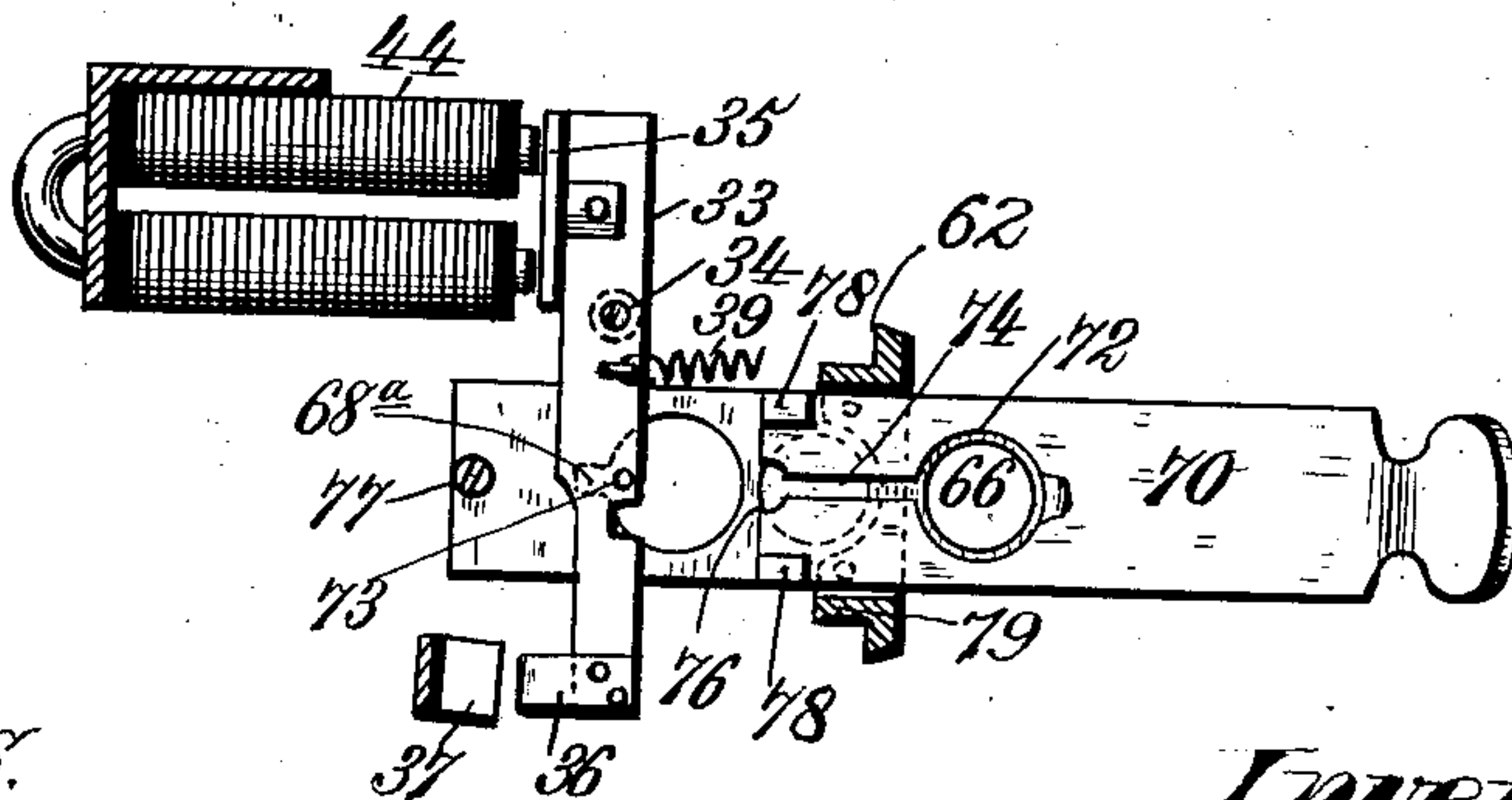


Fig. 3.



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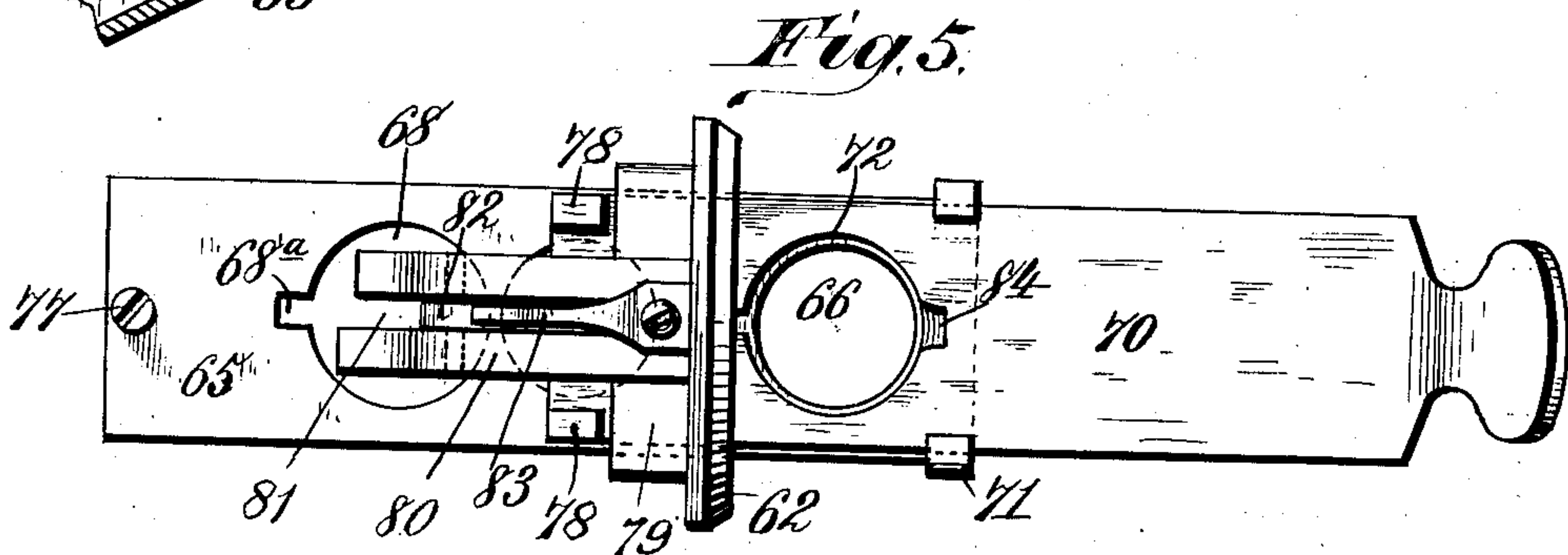
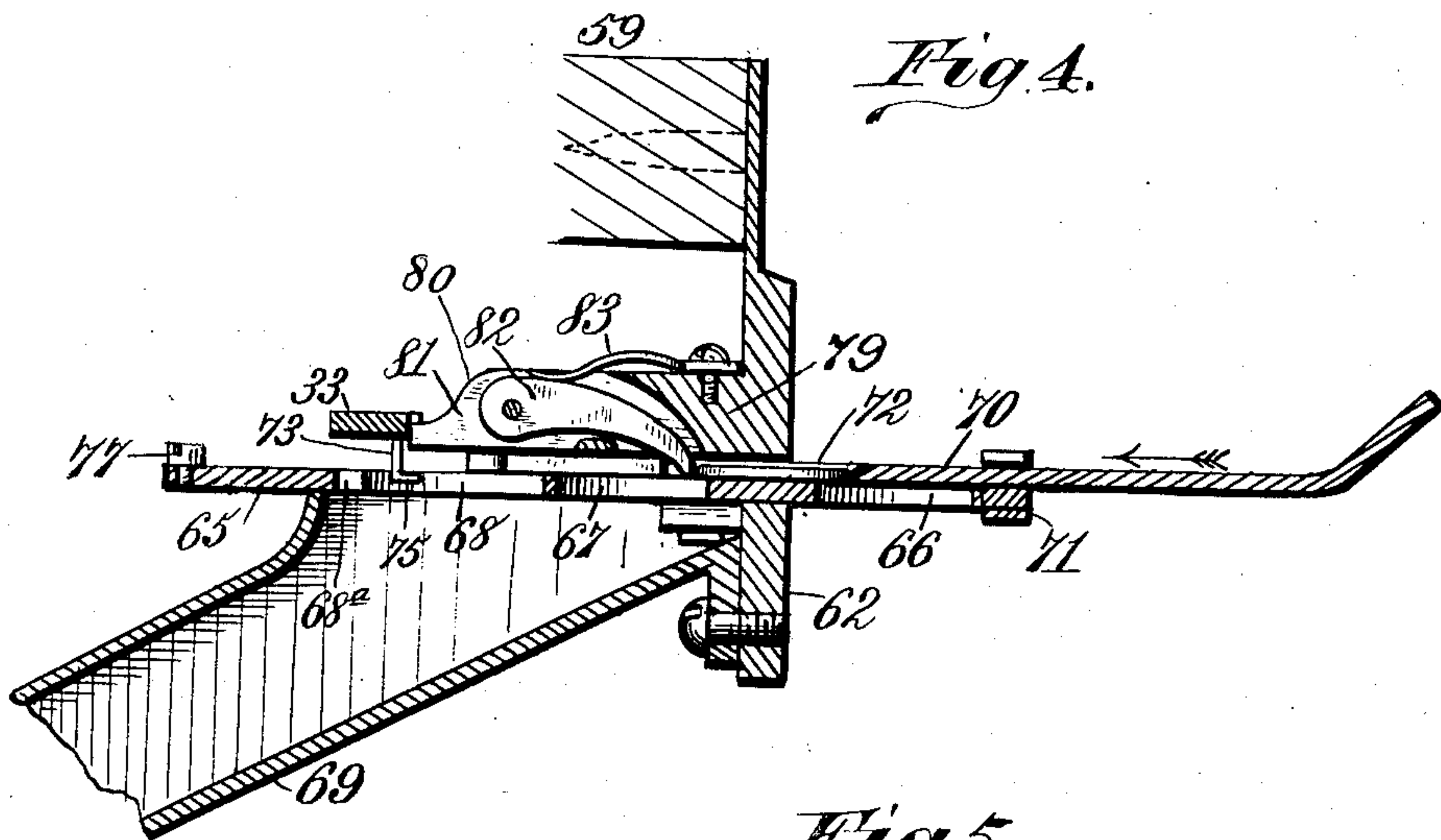
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2 SHEETS—SHEET 2.



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Attys.

UNITED STATES PATENT OFFICE.

GEORGE HOWLETT DAVIS, OF NEW YORK, N. Y.

COIN-CONTROLLED MECHANISM.

974,035.

Specification of Letters Patent.

Patented Oct. 25, 1910.

Application filed November 22, 1900. Serial No. 37,334.

To all whom it may concern:

Be it known that I, GEORGE HOWLETT DAVIS, residing at 14 South Elliott Place, borough of Brooklyn, Greater New York, State of New York, citizen of the United States, have invented certain new and useful Improvements in Coin-Controlled Mechanism, of which the following is a specification.

10 This invention relates to a coin controlled mechanism, designed more particularly for use on so called self playing musical instruments, but the same is capable of application to other devices the operation of which is dependent on the use of a coin or check of predetermined diameter to cause the disengagement of the locking means which hold the moving parts of said devices in fixed position.

20 To these ends my invention consists in the features and in the construction, combination and arrangement of parts hereinafter described and particularly pointed out in the claims following the description, reference being had to the accompanying drawings forming a part of this specification, wherein—

30 Figure 1 is a sectional side elevation of the coin-controlled apparatus. Fig. 2 is a central longitudinal section of the same. Fig. 3 is a top plan view of a portion thereof. Fig. 4 is a view similar to Fig. 3, showing the action of the parts when it is sought to introduce a coin of improper denomination. Fig. 5 is a top plan view thereof.

35 The improved coin controlled mechanism in the embodiment shown is adapted to be applied to an electrical self playing piano, substantially like that described and illustrated in U. S. Letters Patent granted to me on the 27th day of Jan. 1903, No. 719,092.

40 Referring to the drawings the numeral 59 indicates a support or frame which carries the several parts of the coin-controlled apparatus and which may be firmly attached by any suitable means to a piano casing at any desired point, preferably beneath the key board. Pendent from the frame or support 59 is a coin receptacle 60 provided at its lower end with a drawer 61, that is adapted to be locked by a padlock or similar suitable fastening means in order that unauthorized persons may not have access thereto. A lever 33 and magnet 44 are secured to the frame or support 59, and attached to or formed with said frame or

support is a vertically depending face-plate 62 which is provided with a slot 63.

60 Attached to the frame 59 is a casing 64 which incloses the operative parts of the coin-controlled apparatus, and projecting through the slot in the face-plate is a horizontal slide-rest 65 which may be rigidly and immovably secured in place in any suitable or preferred manner. Formed in the slide-rest are three round apertures respectively indicated by the numerals 66, 67, and 68, the apertures 66 and 67 being slightly smaller than the coin of the proper denomination necessary to operate the apparatus, while the aperture 68 is slightly larger than such coin.

70 In the present example it will be assumed that the nickel coin of the value of five cents in common circulation is the coin designed to operate the coin mechanism. As shown the aperture 66 is formed in that part of the slide-rest which projects without the casing, while the apertures 67 and 68 are formed in that portion of said slide-rest which lies within the casing. A coin chute 69 is fixed within the casing, its upper end being disposed beneath the apertures 67 and 68, and its lower end projecting into the coin receptacle 60. Supported and adapted to slide back and forth on said slide-rest is a slide 70, consisting of a flat metallic plate which is movably arranged in guides 71. A circular aperture 72 is formed in the slide, said aperture being very slightly larger than the five cent coin.

85 Pendent from the lever 33 is a pin 73 that projects below the plane of the slide 70 and is adapted to enter a slot 74 formed in said slide, when the latter is pushed in. If a five cent coin be placed in the aperture 72 it will be held therein by the slide-rest 65, and if the slide be then pushed in the forward edge of the coin will engage the pin 73 and will oscillate the lever 33 about its pivot 34 and cause spring contacts 36 thereon to clasp a fixed contact 37 between them and close an electric circuit, thus putting in operation the apparatus to which the coin controlled mechanism is applied. The lower end of the pin 73 is provided with a laterally and forwardly projecting flange 75, which operates to project under the forward edge of the coin when the latter is thrust inward with the slide as above described and prevents the coin from dropping through the aperture 68 until the coin has finished rocking the lever

33 and has completely closed the electric circuit; when this result has been accomplished, however, the rear edge of the coin will have cleared the slide-rest forming the rear wall of the aperture 68, and the coin being thus deprived of its support will drop down through the aperture into the chute 69 and will be conveyed by the latter to the coin receptacle 60. A slot 68^a is formed in the forward wall of the aperture 68 to permit the pin 73 to move out of the said aperture and allow the coin to drop therethrough. This slot may, however, be dispensed with. In practice the spring contacts 36 are so constructed that they will grasp the contact 37 sufficiently tight to hold the lever against the action of the spring 39, thus maintaining the electric circuit closed through the contacts 36 and 37 after the coin has dropped through the aperture 68 and until the lever is rocked in the opposite direction by the magnet 44. The inner end of the slot 74 is preferably enlarged or made slightly flaring, as at 76, which enlargement is adapted to straddle the head of a bolt or pin 77 fixed in the end of the slide-rest 65, which operates as a stop to limit the inward movement of the slide 70, and the outward movement of the said slide is limited by two projections 78 formed on the opposite upper sides of the slide and which abut a flange 79 formed on the inner side of the face-plate 62 about the slot 63.

Formed integrally with or attached to the face-plate 62 is an inwardly projecting horizontal bracket-arm 80, which is longitudinally slotted as at 81, and in said slotted bracket-arm is pivoted a detent 82 the free end of which is slightly wider than the slot 74 in the slide and is held in engagement with said slide by a spring 83.

When a coin of the proper size is deposited in the aperture 72 in the slide and the latter is pushed in, the slide being approximately the same thickness as the coin, the latter will travel freely under the end of the detent. If a coin smaller than a five cent coin, such as a cent for example, be placed by accident or mistake in the aperture 72, it will drop through the aperture 66 in the slide rest and may be recovered by the depositor. If, however, such small coin be placed in the aperture 72 and be held therein by the depositor while the slide is thrust in until the coin has entered the casing, then, owing to the difference in size between the coin and the aperture 72 there will be left a space or opening between the forward edge of the coin and the wall of the aperture, as most clearly shown in Fig. 5 and when the aperture in the slide passes under the free end of the detent the latter will be forced by its spring into said space or opening in front of the coin and will effectually prevent the slide from being

forced any farther inward and hence the lever 33 cannot be acted upon. Should the depositor, however, seek to defeat the operation of the detent by forcing the undersized coin forward in the aperture 72 so that the forward edge of the coin will abut the forward or inner wall of said aperture, so that the end of the detent cannot drop in front of the forward edge of the coin, then the coin will pass safely under the detent, but as soon as it reaches a point above the aperture 67, being smaller than said aperture the coin will drop therethrough and into the chute 69 by which latter it will be deposited in the coin receptacle 69 and cannot be recovered. Again, should the operator by a sudden quick inward thrust of the slide succeed in forcing the small coin over the aperture 67 so quickly as to prevent it from dropping through the latter, the coin, owing to its insufficient size, would not rest over or engage the flange 75 of the pin 73 and hence would drop through the aperture 68 into the chute 69 and pass from the latter into the coin receptacle.

Coins of the proper denomination will always be of sufficient diameter to actuate the lever 33, but some coins which have long been in circulation will become worn and be of reduced thickness, and when such a coin is deposited in the aperture 72 its upper surface will lie below the upper surface of the slide 70, and in such case the end of the detent 82 would be apt to engage the rear wall of the aperture 72 and prevent the slide from being thrust inward the proper distance to cause the coin to engage and rock the lever 33, and in order to prevent such a result I form a beveled notch or recess 84 in the rear wall of the aperture 72, whereby when the slide is pushed in the end of the detent will engage said beveled notch or recess and ride up over the same onto the upper side of the slide, and thus permit the latter to be pushed in to its limit.

After a coin has been inserted in the coin-controlled mechanism to put the electrically operated apparatus to which it is applied into action, and when such action ceases, the magnet 44 will be energized by suitable means and attract the armature 35 carried by the lever 33, thus rocking the latter and breaking the electric circuit, and putting said apparatus out of action.

It will be noted that the lever 33 is a combined coin-controlled and electrically actuated make-and-break lever, the coin operating to make the circuit and the magnet 44 operating to break it, and it will also be noted that all circuits pass through said lever, whereby none of the circuits are operative until a coin has been deposited in the coin apparatus and the latter actuated to rock the lever and close the circuits through the contacts 36 and 37.

It will be observed from the foregoing description that I have provided an electrically controlled mechanism for moving the music sheet, a means for vitalizing, or in other words, making operative such sheet-moving mechanism, which means in the preferred example of invention shown in the drawings, consists of a push arrangement which operates on a transitory element such as a coin that serves to bridge across the terminals 36, 37; and when this vitalization has been established it is maintained, in the specific example of invention shown, the maintenance of vitalization being accomplished by an imperforate portion of the music sheet; and then at a predetermined time, which will be at the end of a musical composition, means are provided for devitalizing the sheet-moving means, such means in the preferred example of invention shown consisting of a perforation in the music sheet, which establishes a circuit that vitalizes an electromagnet, which in turn operates an element that devitalizes the sheet-moving mechanism.

Having described my invention, what I claim is—

1. In a coin operated mechanism, the combination with a lever provided with means for supporting one edge of a coin, of a manually operated slide arranged to push a coin into said supporting means, and means for temporarily supporting the opposite edge of the coin, the arrangement being such that when the slide is moved in the proper direction the coin is moved into engagement with the lever and actuates the latter.

2. In a coin-operated mechanism, the combination with a lever, of a fixed support for one edge of the coin, a movable support for the opposite edge of the coin carried by the lever, and a manually operated slide to deliver a coin onto said supports, said slide when moved in the proper direction operating to force the coin against the lever and actuate the latter.

3. In a coin-operated mechanism, the combination with a lever, of a fixed support for one edge of the coin, a movable support for the opposite edge of the coin carried by the lever, and a manually operated slide provided with means for delivering a coin onto said supports, said slide when moved in the proper direction operating to force the coin against the lever and actuate the same, the distance between the supports being such that when the coin has actuated the lever the said coin will have been moved from off the fixed support and will drop by gravity.

4. In a coin-operated mechanism, the combination with a lever, of a fixed support for one edge of the coin, a movable support for the opposite edge of the coin carried by the

lever, a manually operated slide provided with means for delivering a coin onto said supports, said slide when moved in the proper direction operating to force the coin against the lever and actuate the latter, and means for returning the lever to its normal position, the distance between the fixed and movable supports being such that if a coin of inferior size be delivered to said supports said coin will be unable to bridge the same and will therefore drop by gravity.

5. In a coin-operated mechanism, the combination with a lever, of a fixed support for one edge of the coin, a movable support for the opposite edge thereof carried by the lever, a manually operated slide provided with a receptacle for the coin and operating when moved in the proper direction to deliver said coin onto the two supports and force it against the lever to actuate the lever, and means arranged to prevent the operation of the slide when a coin of inferior size is inserted in the receptacle.

6. In a coin-operated mechanism, the combination with a lever, of a fixed support for one edge of the coin, a movable support for the opposite edge thereof carried by the lever, a manually operated slide provided with a coin receptacle, means for discarding a coin of inferior size from said receptacle, and means for retaining therein during the movement of the slide a coin of the proper size, said slide when moved in the proper direction operating to force the coin against the lever and actuate the latter.

7. In a coin-operated mechanism, the combination with a lever and a support carried by said lever for supporting one edge of the coin, a fixed support for supporting the opposite edge of the coin, and manually operated mechanism for delivering a coin onto said supports and for forcing the same against the lever to actuate the latter.

8. In a coin-operated mechanism, the combination with a lever and a support carried by the same for supporting one edge of a coin, of a slide rest arranged to support the opposite edge of the coin, and a slide movably arranged on the slide rest and constructed to receive a coin and operating when moved in the proper direction to deposit the coin on said supports and force the same against the lever to actuate the latter.

9. In a coin-operated mechanism, the combination with a lever and a support carried thereby for supporting one edge of the coin, of a slide rest arranged to support the opposite edge of the said coin, and a manually operated slide arranged to move a coin over said slide rest onto said supports and to force it against the lever and actuate the latter, said slide rest being provided with an aperture slightly smaller than a coin of the proper size whereby when a coin of infe-

rior size is employed it will drop by gravity through said aperture and fail to actuate the lever.

10. In a coin-operated mechanism, the combination with a slide rest, of a slide movably arranged on the slide rest and provided with an aperture for the reception of a coin, said aperture corresponding in size to the size of a determined coin, mechanism arranged to be operated by the movement of the slide, and a detent resting at its free end on said slide, the arrangement being such that when a coin of inferior size is deposited in the aperture in the slide said detent will drop into said aperture between the wall of the latter and the edge of the coin and arrest the movement of the slide, and means for raising said detent from off a coin of the proper size but inferior thickness and cause said detent to rest on top of the slide when the latter is pushed inward.

11. In a coin-operated mechanism, the combination with a slide rest, of a slide movably arranged on the slide rest and provided with an aperture for the reception of a coin, said aperture corresponding in size to the size of a determined coin, mechanism arranged to be actuated by the movement of the slide, a pivoted detent resting at its free end on said slide, and a spring for forcing said detent into engagement with the slide, the arrangement being such that when a coin of inferior size is deposited in the aperture and the slide is moved toward the detent, the end of the latter will be forced between the edge of the coin and the adjacent wall of the aperture and prevent the further movement of the slide, and means for raising said detent from off a coin of the proper size but inferior thickness and cause said detent to rest on top of the slide when the latter is pushed inward.

12. In a coin-operated mechanism, the combination with a slide rest, of a slide movably arranged on the slide rest and provided with an aperture for the reception of a coin, said aperture corresponding in size to the size of a determined coin and of approximately the same thickness as the normal thickness of such coin, mechanism arranged to be actuated by the movement of the slide, and a detent arranged when a coin of inferior size is inserted in the aperture to

drop between the edge of the coin and the adjacent wall of the aperture, said slide being provided with a beveled groove or recess in rear of the aperture.

13. In a coin-operated mechanism, the combination with a pivoted lever, of a slide rest provided with an aperture of approximately the size of a determined coin, a slide movable on the slide rest and provided with a coin receptacle, and a laterally projecting flange depending from the lever and projecting into said aperture, the arrangement being such that when the slide is moved in the proper direction the coin will be deposited on said flange and on the slide rest at one edge of the aperture and said coin will be forced by the slide against the lever and actuate the latter, whereupon the coin will be released and drop through the aperture.

14. In a coin-operated mechanism, the combination with a pivoted lever, of a slide rest provided with an aperture of approximately the size of a determined coin, a slide movable on the slide rest and provided with an aperture for the reception of a coin, a pin pendent from the lever and provided at its lower end with a laterally projecting flange projecting into the aperture in the slide rest, said slide being provided with a slot extending from its inner end to the aperture therein.

15. In a coin-operated mechanism, the combination with a pivoted lever, of a slide rest provided with an aperture of approximately the size of a determined coin, a slide movable on the slide rest and provided with an aperture for the reception of a coin, a pin pendent from the lever and provided at its lower end with a laterally extending flange projecting into the aperture in the slide rest, said slide being provided with a slot extending from its inner end to the aperture therein, and a projection on the inner end of the slide rest arranged to engage the end of the slide and limit the movement of the latter.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

GEORGE HOWLETT DAVIS.

Witnesses:

WM. H. AITKEN,
CHAS. C. OLIVER.